UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/588,788	06/06/2000	Heng-Ming Hsu	67,200-262	9280

7590 10/15/2004

Tung & Associates
838 W. Long Lake Road
Suite 120
Bloomfield Hills, MI 48302

EXAMINER	
TUGBANG, ANTHONY D	
ART UNIT	**PAPER NUMBER**
3729	

DATE MAILED: 10/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

UNITED STATES PATENT AND TRADEMARK OFFICE

COMMISSIONER FOR PATENTS
UNITED STATES PATENT AND TRADEMARK OFFICE
P.O. BOX 1450
ALEXANDRIA, VA 22313-1450
www.uspto.gov

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 09/588,788
Filing Date: June 06, 2000
Appellant(s): HSU ET AL.

Randy W. Tung
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed July 19, 2004.

(1) Real Party in Interest

A statement identifying the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

A statement identifying the related appeals and interferences, which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(3) Status of Claims

The statement of the status of the claims contained in the brief is correct.

(5) Summary of Invention

The summary of invention contained in the brief is correct.

(6) Issues

The appellant's statement of the issues in the brief is correct.

(7) Grouping of Claims

The appellant's statement in the brief that certain claims do not stand or fall together is not agreed with because the grouping of the claims would correspond with the issues and arguments presented by the appellants. Accordingly, Claims 1, 4-6, 8 and 16 stand or fall together as this would correspond to Issue I. Claim 7 stands or falls alone as this would correspond to Issue II.

(8) Claims Appealed

The copy of the appealed claims contained in the Appendix to the brief is correct.

(9) Prior Art of Record

4,295,173	Romankiw et al	10-1981
4,392,013	Ohmura	7-1983

(10) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims and are expressly stated in the Final Rejection (dated October 31, 2003). No new grounds of rejection are being presented and the following ground(s) of rejections are hereby repeated below merely for the convenience of the Appellants and the BPAI.

I. Claims 1, 4-6, 8 and 16 rejected under 35 U.S.C. 102(b) as being anticipated by Romankiw et al 4,295,173.

Romankiw discloses a method of fabricating an inductor structure comprising: providing a substrate 20 (in Fig. 1A); forming over the substrate a single spiral planar conductor 10 (in Fig. 1B) to form a single spiral planar inductor, wherein the successive series of spirals is formed with a continuous variation of a series of linewidths (10a-10h).

Regarding Claims 4 and 5, Romankiw teaches that the spirals are formed in a shape of a rectangle (as shown in Fig. 1B) with the conductor material is non-magnetic (see col. 2, lines 43-46).

Regarding Claims 6, 8, and 16, the spirals formed by the conductor are shown (in Fig. 1B) to have a "comparatively narrow linewidth" at a portion of the spiral closer to the medium M and a "comparatively wide linewidth" with a greater thickness than the "comparatively narrow linewidth" at the portion of the spiral furthest away from the medium M. One spiral 10 is comprised of at least 4 spirals where the variation is progressively increasing and decreasing with at least one of the spirals.

II. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Romankiw et al in view of Ohmura et al 4.392,013.

Romankiw discloses the claimed fabrication method as previously discussed. Romankiw does not specifically mention the specific ranges defined in Claim 7 for the comparatively narrow linewidth and comparatively wide linewidth.

Ohmura teaches different linewidths for spiral conductors with one range of 0.1-10 μm, which is inclusive of the claimed range of 7-10 microns for the comparatively narrow linewidth, and another range of 34.9-190 μm for a comparatively wide linewidth. The benefits of the variation of linewidths allows formation of the spiral conductors to occur free from short circuiting with high reliability (see col. 1, lines 62-66).

It would have been obvious to one of ordinary skill in the art at the time the invention was made formed the spiral conductors of Romankiw with the linewidths taught by Ohmura, to positively form spiral conductors free from short circuiting and with high reliability.

With respect to the comparatively wide linewidth having a width in the range of 17-21 microns, this claimed range is considered to be an effective variable within the level or ordinary skill in the art of forming spiral conductors and it would have been obvious to one of ordinary skill in the art at the time the invention was made to have provided a range for the comparatively wide linewidth of between about 17-21 microns, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

(11) Response to Argument

Issue I

In regards to the merits of Romankiw, the appellants first assert that Romankiw does not teach a "continuous variation of a series of linewidths of a successive series of spirals" (as required by Claim 1, lines 5-7 and Claim 4, lines 5-6).

The examiner most respectfully traverses and has relied upon Figures 1A and 1B of Romankiw. It is noted that drawings and pictures can anticipate claims if they clearly show the structure of which is claimed whereas the drawings of a reference patent cannot simply be disregarded in determining patentability of the claimed invention. *In re Mraz*, 455 F.2d 1069, 173 USPQ 25 (CCPA 1972). In this case, Romankiw shows (in Figure 1B) a successive series of spirals with each series being read as one, complete rectangular shaped spiral following a path that includes four turns completing a rotation of 360°. So starting from the far right pad area 23 and ending at termination pad 17, Romankiw teaches a successive series of at least four spirals 10a, 10c, 10e, 10g that is clearly "continuous" because there is no break or disruption in the planar spiral conductor layer. These successive series of spirals include a series of linewidths that is formed with a continuous variation because the linewidths of the portions of the spirals 10a, 10c, 10e 10g above pads 17 (in Figure 1B) is greater in width than the linewidths of the portions of the spirals 10a, 10c, 10e 10g below pads 17. Further evidence of the continuous variation of linewidths is shown in a cross-sectional view (of Figure 1A) in which Romankiw clearly shows linewidths of the portions of the spirals above pads 17 that are greater in width (taken along the vertical direction of Figure 1A) in comparison with the linewidths of the spirals below the pads 17. So clearly, Romankiw satisfies the limitations of a continuous variation of a

series of linewidths of a successive series of spirals. The examiner fails to see how Romankiw has a discontinuous variation of a series of linewidths of a successive series of spirals.

The appellants further assert that Romankiw teaches a pair of spiral conductor layers and not a single spiral conductor layer.

First, Romankiw does teach at least one spiral conductor layer at least for the reasons discussed above, which is required for the proper operation of the inductor structure. Second, the examiner's position is that the claim language does not limit the number of spiral conductor layers to only one, single layer. The appellants use the open ended transitional term of "comprising" (in the preamble of Claim 1 and 4) regarding the scope of the claimed invention. The transitional term of "comprising" does not exclude additional, unrecited elements or method steps. *Genentech, Inc. V. Chiron Corp.*, 112 F. 3d 495, 501, 42 USPQ 2d 1608, 1613 (Fed. Cir. 1997). The examiner's position is that the term "comprising" is used to indicate that the single spiral conductor layer is essential, but that other spiral conductor layers may be added and still form a construct within the scope of the claim. *In re Baxter*, 656 F.2d 679, 686, 210 USPQ 795, 803 (CCPA 1981). Therefore, while Romankiw may have a pair of spiral conductor layers, the second spiral conductor layer is not excluded from the scope of the claim.

Issue II

With respect to the merits of Ohmura, the appellants assert that Ohmura teaches thicknesses of the patterned conductor layers and not linewidths of the patterned conductor layers.

While the examiner recognizes that Ohmura does teach line thicknesses of the patterned conductor layers, it is these varying dimensions of thickness that the examiner has read as a continuous variation of linewidth.

Furthermore, it appears that the appellants have failed to consider the entire disclosure of Ohmura in which he teaches teaches a significant correlation between the thicknesses and linewidths of the spiral conductor layer. This is clearly shown in Figures 4 and 5 of Ohmura with variations in both line thicknesses and line widths of a spiral conductor layer for at least the associated advantages of having spiral conductor layers free from short circuiting with high reliability (see col. 1, lines 62-66 of Ohmura). The guiding principle here to one of ordinary skill in the art is that both Romankiw and Ohmura teach a continuous variation of a series of linewidths of a successive series of spirals and to achieve a comparatively wide, or wider, linewidth between 17-21 microns is considered to be the discovery of an optimum value of a result effective variable that can achieved through routine skill in the art. *In re Boesch*, 617 F. 2d 272, 205 USPQ 215 (CCPA 1980).

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

A. Dexter Tugbang
Primary Examiner
Art Unit 3729

October 14, 2004

Conferees

Peter Vo
Supervisory Patent Examiner, Art Unit 3729

Allan Shoap
Supervisory Patent Examiner, Art Unit 3724

Tung & Associates
838 W. Long Lake Road
Suite 120
Bloomfield Hills, MI 48302